

Application No. 09/891,997
Amendment dated October 31, 2007
Reply to Office Action of May 9, 2007

REMARKS

Status Of Application

Claims 1-26 and 29-48 are pending in the application; the status of the claims is as follows:

Claims 6-26 and 30-43 are withdrawn from consideration.

Claims 1-5, 29, and 44-48 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,920,409 to Yamagishi (“Yamagishi”) in view of U.S. Patent No. 6,954,195 B2 to Yoneda et al. (“Yoneda”).

Claims 1-5, 29, and 44-48 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamagishi in view of U.S. Patent No. 6,697,039 B1 to Yamakawa et al. (“Yamakawa”).

Claims 1-5, 29, and 44-48 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamagishi in view of U.S. Patent No. 6,414,669 B1 to Masazumi (“Masazumi”) and U.S. Patent No. 5,602,559 A to Kimura (“Kimura”).

35 U.S.C. § 103(a) Rejections

The rejection of claims 1-5, 29, and 44-48 under 35 U.S.C. § 103(a), as being unpatentable over Yamagishi in view of Yoneda, is respectfully traversed based on the following.

Yamagishi shows a color LCD display (Figure 1) where scanning electrodes C1, C2, ... form a matrix across liquid crystal material with signal electrodes R1, R2, In Yamagishi, the scanning electrodes have a greater pitch than the signal electrodes.

Yoneda shows a display using LCD material having a cholesteric phase (7:14-17). Figure 8 shows signals where scan electrodes are selected serially and image signals are applied to the signal electrodes synchronized with the scan signals to produce the image (15:15-42)

In contrast to the cited references, claim 1 includes:

a number of first scanning electrodes aligned in a first direction at a first pitch, the number of the first scanning electrodes corresponding to a number of rows and each of the first scanning electrodes extending in a second direction substantially orthogonal to the first direction;

a plurality of signal electrodes facing the first scanning electrodes with the liquid crystal layer sandwiched between the signal electrodes and the first scanning electrodes, the signal electrodes being aligned in the second direction at a second pitch wider than the first pitch and each of the signal electrodes extending in the first direction;

a scanning electrode driver connected to the first scanning electrodes;

a signal electrode driver connected to the signal electrodes; and

a controller for controlling the scanning electrode driver and the signal electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode.

The Office Action states the “[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange the scanning a signal lines for designed choice of vertical and horizontal images, since it has been held the rearranging parts of an invention involves only routine skill in the art.”(Page 6) Applicants respectfully submit that changing the scan electrodes to signal electrodes, and *vice versa* of Yamagishi is more than a mere design choice. The device of Figure 1 of Yamagishi operates by applying scan signals to the scanning electrodes and image signals to the signal electrodes (Yamagishi 1:52-57). Using the electrodes for their opposite purpose would change the principles of operation of Yamagishi.

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.

MPEP 2143.01(VI)

Therefore, using the Yamagishi reference in accordance with its principle of operation, the combined references do not show or suggest “a number of first scanning electrodes aligned in a first direction at a first pitch” and “a plurality of signal electrodes facing the first scanning electrodes . . ., the signal electrodes being aligned in the second direction at a second pitch wider than the first pitch.” Thus, the cited references do not support a *prima facie* case for obviousness of claim 1 and claim 1 is patentably distinct from the prior art. Claims 2-5, 29 and 44-46 are dependent upon claim 1, and thus include every limitation of claim 1. Therefore, the cited references do not support a *prima facie* case for obviousness of claims 2-5, 29 and 44-46 and claims 2-5, 29 and 44-46 are patentably distinct from the prior art. (See MPEP 2143.03)

Also in contrast to the cited references, claim 47 includes:

a liquid crystal layer comprising liquid crystal and having a plurality of pixels arranged in a matrix composed of rows and columns, said liquid crystal having a memory effect, said liquid crystal exhibiting a cholesteric phase, said pixels aligned in a first direction along the columns at a first pitch and in a second direction along the rows at a second pitch wider than the first pitch;

a plurality of first scanning electrodes aligned in the first direction, a number of the first scanning electrodes corresponding to a number of rows and each of the first scanning electrodes extending in the second direction substantially orthogonal to the first direction;

a plurality of signal electrodes facing the first scanning electrodes, the signal electrodes being aligned in the second direction, a number of the signal electrodes corresponding to a number of columns and each of the signal electrodes extending in the first direction; . . .

Because the scanning electrodes are arranged extending in the second direction, the scanning electrodes correspond to the second, wider pitch. Conversely, because signal electrodes extend in the first direction, the signal electrodes correspond to the first, narrower

pitch. Yamagishi shows a common (scanning) electrodes that are wider than the signal electrodes. As shown above, the electrodes of Yamagishi cannot be modified to their opposite purpose because that would change the principles of operation of Yamagishi. Therefore, the cited references do not support a *prima facie* case for obviousness of claim 47 and claim 47 is patentably distinct from the prior art.

Also in contrast to the cited references, claim 48 includes:

a plurality of first scanning electrodes aligned in a first direction at a first pitch, a quantity of the first scanning electrodes corresponding to a quantity of rows, and each of the first scanning electrodes extending in a second direction substantially orthogonal to the first direction;

a plurality of signal electrodes facing the first scanning electrodes with the liquid crystal layer sandwiched between the signal electrodes and the first scanning electrodes, the signal electrodes being aligned in the second direction at a second pitch wider than the first pitch and each of the signal electrodes extending in the first direction;

a scanning electrode driver connected to the first scanning electrodes;

a signal electrode driver connected to the signal electrodes; and

a controller for controlling the scanning electrode driver and the signal electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode, ...

In contrast, Yamagishi shows a common (scanning) electrodes that are wider than the signal electrodes. As shown above, the electrodes of Yamagishi cannot be modified to their opposite purpose because that would change the principles of operation of Yamagishi.

Therefore, the cited references do not support a *prima facie* case for obviousness of claim 48 and claim 48 is patentably distinct from the prior art.

Accordingly, it is respectfully requested that the rejection of claims 1-5, 29, and 44-48 under 35 U.S.C. § 103(a) as being unpatentable over Yamagishi in view of Yoneda, be reconsidered and withdrawn.

The rejection of claims 1-5, 29, and 44-48 under 35 U.S.C. § 103(a), as being unpatentable over Yamagishi in view of Yamakawa, is respectfully traversed based on the following.

Yamaka shows a display using cholesteric material (6:12-16) that is driven by selecting scanning electrodes and applying signals to the signal electrodes (10:60-11:16).

In contrast to the cited references, claim 1 includes:

a number of first scanning electrodes aligned in a first direction at a first pitch, the number of the first scanning electrodes corresponding to a number of rows and each of the first scanning electrodes extending in a second direction substantially orthogonal to the first direction;

a plurality of signal electrodes facing the first scanning electrodes with the liquid crystal layer sandwiched between the signal electrodes and the first scanning electrodes, the signal electrodes being aligned in the second direction at a second pitch wider than the first pitch and each of the signal electrodes extending in the first direction;

a scanning electrode driver connected to the first scanning electrodes; a signal electrode driver connected to the signal electrodes; and

a controller for controlling the scanning electrode driver and the signal electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode.

The Office Action states the “[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange the scanning a signal lines for designed choice of vertical and horizontal images, since it has been held the rearranging parts of an

invention involves only routine skill in the art.”(Page 9) Applicants respectfully submit that changing the scan electrodes to signal electrodes, and *vice versa* of Yamagishi is more than a mere design choice. The device of Figure 1 of Yamagishi operates by applying scan signals to the scanning electrodes and image signals to the signal electrodes (Yamagishi 1:52-57). Using the electrodes for their opposite purpose would change the principles of operation of Yamagishi.

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.

MPEP 2143.01(VI)

Therefore, using the Yamagishi reference in accordance with its principle of operation, the combined references do not show or suggest “a number of first scanning electrodes aligned in a first direction at a first pitch” and “a plurality of signal electrodes facing the first scanning electrodes ..., the signal electrodes being aligned in the second direction at a second pitch wider than the first pitch.” Thus, the cited references do not support a *prima facie* case for obviousness of claim 1 and claim 1 is patentably distinct from the prior art. Claims 2-5, 29 and 44-46 are dependent upon claim 1, and thus include every limitation of claim 1. Therefore, the cited references do not support a *prima facie* case for obviousness of claims 2-5, 29 and 44-46 and claims 2-5, 29 and 44-46 are patentably distinct from the prior art. (See MPEP 2143.03)

Also in contrast to the cited references, claim 47 includes:

a liquid crystal layer comprising liquid crystal and having a plurality of pixels arranged in a matrix composed of rows and columns, said liquid crystal having a memory effect, said liquid crystal exhibiting a cholesteric phase, said pixels aligned in a first direction along the columns at a first pitch and in a second direction along the rows at a second pitch wider than the first pitch;

a plurality of first scanning electrodes aligned in the first direction, a number of the first scanning electrodes corresponding to a number of rows and each of the first scanning electrodes extending in the second direction substantially orthogonal to the first direction;

a plurality of signal electrodes facing the first scanning electrodes, the signal electrodes being aligned in the second direction, a number of the signal electrodes corresponding to a number of columns and each of the signal electrodes extending in the first direction; ...

Because the scanning electrodes are arranged extending in the second direction, the scanning electrodes correspond to the second, wider pitch. Conversely, because signal electrodes extend in the first direction, the signal electrodes correspond to the first, narrower pitch. Yamagishi shows a common (scanning) electrodes that are wider than the signal electrodes. As shown above, the electrodes of Yamagishi cannot be modified to their opposite purpose because that would change the principles of operation of Yamagishi. Therefore, the cited references do not support a *prima facie* case for obviousness of claim 47 and claim 47 is patentably distinct from the prior art.

Also in contrast to the cited references, claim 48 includes:

a plurality of first scanning electrodes aligned in a first direction at a first pitch, a quantity of the first scanning electrodes corresponding to a quantity of rows, and each of the first scanning electrodes extending in a second direction substantially orthogonal to the first direction;

a plurality of signal electrodes facing the first scanning electrodes with the liquid crystal layer sandwiched between the signal electrodes and the first scanning electrodes, the signal electrodes being aligned in the second direction at a second pitch wider than the first pitch and each of the signal electrodes extending in the first direction;

a scanning electrode driver connected to the first scanning electrodes; a signal electrode driver connected to the signal electrodes; and

a controller for controlling the scanning electrode driver and the signal electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode, ...

In contrast, Yamagishi shows a common (scanning) electrodes that are wider than the signal electrodes. As shown above, the electrodes of Yamagishi cannot be modified to their opposite purpose because that would change the principles of operation of Yamagishi. Therefore, the cited references do not support a *prima facie* case for obviousness of claim 48 and claim 48 is patentably distinct from the prior art.

Accordingly, it is respectfully requested that the rejection of claims 1-5, 29, and 44-48 under 35 U.S.C. § 103(a) as being unpatentable over Yamagishi in view of Yamakawa, be reconsidered and withdrawn.

The rejection of claims 1-5, 29, and 44-48 under 35 U.S.C. § 103(a), as being unpatentable over Yamagishi in view of Masazumi and Kimura, is respectfully traversed based on the following.

Masazumi shows using cholesteric and/or chiral liquid crystal materials (1:21-24).

Kimura shows applying scanning signals to scanning electrodes and image signals to signal electrodes (Figures 3-10).

In contrast to the cited references, claim 1 includes:

a number of first scanning electrodes aligned in a first direction at a first pitch, the number of the first scanning electrodes corresponding to a number of rows and each of the first scanning electrodes extending in a second direction substantially orthogonal to the first direction;

a plurality of signal electrodes facing the first scanning electrodes with the liquid crystal layer sandwiched between the signal electrodes and the first scanning electrodes, the signal electrodes being aligned in the second direction at a second pitch wider than the first pitch and each of the signal electrodes extending in the first direction;

a scanning electrode driver connected to the first scanning electrodes; a signal electrode driver connected to the signal electrodes; and

a controller for controlling the scanning electrode driver and the signal electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode.

The Office Action states the “[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange the scanning a signal lines for designed choice of vertical and horizontal images, since it has been held the rearranging parts of an invention involves only routine skill in the art.”(Page 13) Applicants respectfully submit that changing the scan electrodes to signal electrodes, and *vice versa* of Yamagishi is more than a mere design choice. The device of Figure 1 of Yamagishi operates by applying scan signals to the scanning electrodes and image signals to the signal electrodes (Yamagishi 1:52-57). Using the electrodes for their opposite purpose would change the principles of operation of Yamagishi.

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Also in contrast to the cited references, claim 47 includes:

a liquid crystal layer comprising liquid crystal and having a plurality of pixels arranged in a matrix composed of rows and columns, said liquid crystal having a memory effect, said liquid crystal exhibiting a cholesteric phase, said pixels aligned in a first direction along the columns at a first pitch and in a second direction along the rows at a second pitch wider than the first pitch;

a plurality of first scanning electrodes aligned in the first direction, a number of the first scanning electrodes corresponding to a number of rows and each of the first scanning electrodes extending in the second direction substantially orthogonal to the first direction;

a plurality of signal electrodes facing the first scanning electrodes, the signal electrodes being aligned in the second direction, a number of the signal electrodes corresponding to a number of columns and each of the signal electrodes extending in the first direction; ...

Because the scanning electrodes are arranged extending in the second direction, the scanning electrodes correspond to the second, wider pitch. Conversely, because signal electrodes extend in the first direction, the signal electrodes correspond to the first, narrower pitch. Yamagishi shows a common (scanning) electrodes that are wider than the signal electrodes. As shown above, the electrodes of Yamagishi cannot be modified to their opposite purpose because that would change the principles of operation of Yamagishi. Therefore, the cited references do not support a *prima facie* case for obviousness of claim 47 and claim 47 is patentably distinct from the prior art.

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a plurality of signal electrodes facing the first scanning electrodes with the liquid crystal layer sandwiched between the signal electrodes and the first scanning electrodes, the signal electrodes being aligned in the second direction at a second pitch wider than the first pitch and each of the signal electrodes

extending in the first direction;
a scanning electrode driver connected to the first scanning electrodes;
a signal electrode driver connected to the signal electrodes; and
a controller for controlling the scanning electrode driver and the signal
electrode driver such that the scanning electrode driver selects the first scanning
electrodes in a specified order by outputting a selective signal to each of the first
scanning electrodes and the signal electrode driver outputs signals to the plurality
of signal electrodes in accordance with image data to display the pixels on the row
of the matrix corresponding to the selected scanning electrode, ...

In contrast, Yamagishi shows a common (scanning) electrodes that are wider than the signal electrodes. As shown above, the electrodes of Yamagishi cannot be modified to their opposite purpose because that would change the principles of operation of Yamagishi. Therefore, the cited references do not support a *prima facie* case for obviousness of claim 48 and claim 48 is patentably distinct from the prior art.

Accordingly, it is respectfully requested that the rejection of claims 1-5, 29, and 44-48 under 35 U.S.C. § 103(a) as being unpatentable over Yamagishi in view of Masazumi and Kimura, be reconsidered and withdrawn.

CONCLUSION

Wherefore, in view of the foregoing amendments and remarks, this application is considered to be in condition for allowance, and an early reconsideration and a Notice of Allowance are earnestly solicited.

This Amendment does not increase the number of independent claims, does not increase the total number of claims, and does not present any multiple dependency claims. Accordingly, no fee based on the number or type of claims is currently due. However, if a fee, other than the issue fee, is due, please charge this fee to Sidley Austin LLP Deposit Account No. 18-1260.

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If an extension of time is required to enable this document to be timely filed and there is no separate Petition for Extension of Time filed herewith, this document is to be construed as also constituting a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) for a period of time sufficient to enable this document to be timely filed.

Any other fee required for such Petition for Extension of Time and any other fee required by this document pursuant to 37 C.F.R. §§ 1.16 and 1.17, other than the issue fee, and not submitted herewith should be charged to Sidley Austin LLP Deposit Account No. 18-1260. Any refund should be credited to the same account.

Respectfully submitted,

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